through the water on the way home. It is by no means easy work hauling the dredge, leaning over the side of the scow to wash the contents of the sieves, and we have narrow escapes from sea-sickness on rough days.

Outside the islands, in deep water, we have dredged the *Dentalium striolatum*, valves of the *Panomya norvegica*, *Mya truncata* and *Liocyma fluctuosa*, and alive the *Menestho albula*, *Admete couthouyi*, *Puncturella noachina*, *Lepeta caeca*, *Modiolaria nigra*, *Modiolaria discors* and *Modiolaria corrugata*, also the *Cardium islandicum*.

On arriving home, the material collected is spread in the sieves to dry in the sun, and we find it difficult to wait until it is dry enough to bring into the work room. It is only by careful picking over that the smaller species are obtained and it is in this way that we get good series of the *Rissoidæ*. The *Rissoa*, or rather *Cingula castanea*, *Rissoella eburnea*, *Turbonella nivea*, *Turritella acicula*, and *Turritella erosa*, *Molleria costulata*, *Retusa gouldii* and *Retusa petenuis*, and the *Diaphana debilis*.

Many live specimens are put into shallow dishes, and under the microscope it is most interesting to watch the *Margaritas*, *Belus*, *Lunatias* and the active *Yoldias* moving about.

A day's dredging thus means a good deal of work, and after all comes the labelling and putting in the cabinet, last but not least of a day's dredging.

OBSERVATIONS ON THE GENUS QUADRULA.

BY L. S. FRIERSON.

In his admirable Synopsis of the Naiades, Mr. Chas. T. Simpson says (page 766), that although he had examined thousands of animals of the *plicata* group of *Quadrula*, he had never seen but a single one having eggs in the gills, and that other students had found them equally barren. In NAUTILUS (vol. xv, no. 4, p. 39), H. von Ihering speaks of *the specimen* of *Q. heros* Say, examined by Lea, and of *the specimen* seen by Sterki, and he seems to be rather doubtful whether *Quadrula* (of this group at all events) *always* carry eggs in all four gills. My observations of late have been singularly lucky in this respect and will, I think, settle this point. The first specimen

found gravid by me (of this group) was a *Q. trapezoides*, May 10, 1901. Since that time I have opened and examined dozens of gravid specimens. They are gravid from May to September, after which I have never found eggs in their gills. Of *Quadrula perplicatus* Conrad, I have taken but two specimens, June 7, 1901, and August 19, 1903. In one the gills (all *four*) were but one-half filled with eggs, the *lower half* of each gill being empty. The other was a normal *Quadrula*. *Quadrula heros* had never been taken gravid by me until October 8, 1903, a young specimen proved to be in that condition. Its gills (four) were packed full of uncountable ova. These, under the microscope, were perfectly spherical and undeveloped, showing that they were recently extruded from the ovary.

On November 24, 1903, a batch of about fifty were brought me by a negro, to be sent to Mr. Chas. Conner, of Philadelphia. After packing fifteen or twenty for him, the remainder were opened, and to my surprise, fully half were gravid. Mr. Conner reported several of his also gravid. Most of these eggs were not yet developed into glochidia, several specimens having eggs in the "mulberry stage."

January 7, 1904, out of seven specimens opened, four proved to be gravid. These were full of glochidia, but they did not seem to be perfectly developed or ready to be extruded, being very sluggish.

These observations prove two points: First, that the *plicata* group belongs safely to *Quadrula*, as defined by Mr. Simpson, and that the specimen noted by Sterki and H. von Ihering must have been abnormal. Secondly, that the *seasons* of ovulation are different in different species of the same group, *Q. trapezoides* being a summer breeder, while *Q. heros* is an autumn or winter breeder.

THE MOLLUSKS OF CEDAR LAKE, INDIANA.

BY FRANK COLLINS BAKER.

Some months ago, the Monon Railroad invited the writer to visit Cedar Lake, Indiana, to witness the seining of the lake for "pirate" fish, such as carp, gars and pickerel. Incidentally a collection of the mollusks was made, which seems of more than passing interest. The lake is a body of cold water, of considerable extent and of great depth in places. The species collected are as follows: